

IN THE CLAIMS:

7. (CURRENTLY AMENDED) An apparatus for detecting a target molecule in a sample fluid in vivo or in vitro, comprising:

~~a reagent tag that fluoresces when subjected to near infrared light emissions injected into the target molecule;~~

~~a light source that emits light in a wavelength comprising near infrared light emissions;~~

~~a sample holder holding the target molecule for analysis~~an uptake tube, comprising,

an uptake channel having a receiving end to receive the sample fluid, and

an analysis target area within the uptake channel having a matrix therein, the matrix being activated by binding a capture molecule for the target molecule to the matrix; matrix, and

a reservoir on a side of the matrix opposite the receiving end of the uptake channel;

a reagent tag that binds to the target molecule and fluoresces when subjected to near infrared light emissions;

a pump assembly aspirating the sample fluid and the reagent tag into the uptake channel, through the matrix, and into the reservoir to a predetermined level;

a light source focused on the analysis target area and emitting light in a wavelength comprising near-infrared light emissions; and

~~an optical system comprising a lens; and~~

a detector detecting the reagent tag that fluoresces within the sample holder analysis target area when subjected to the light source.

8. (ORIGINAL) The apparatus according to claim 7 wherein the light source is a laser diode.

9. (CURRENTLY AMENDED) The apparatus ~~according to~~ of claim 7 ~~wherein the further comprising an optical system comprises~~ with a fiber optic lens and a bandpass filter.

10. (ORIGINAL) The apparatus according to claim 7 wherein the detector comprises a photodiode coupled to an LCD.

11. (CURRENTLY AMENDED) The apparatus of claim 7 wherein the analysis target area matrix comprises an area composed of a solid phase within the channel one of micro-ground glass, micro-glass, plastic beads, nylon, a mesh, and a screen, and the matrix having has physical barriers on opposite sides of the area thereof.

12. (CURRENTLY AMENDED) An apparatus for detecting a target molecule in a sample fluid in vivo or in vitro, comprising:

a reagent tag that fluoresces when subjected to near infrared light emissions injected into the target molecule;

a light source that emits light in a wavelength comprising near infrared light emissions;

a sample holder holding the target molecule for analysis, comprising,

an uptake-channel, channel having a receiving end to receive the sample fluid;

a matrix within the uptake channel, the matrix being activated by binding a capture molecule for the target molecule to the matrix, and matrix;

a reservoir on a side of the matrix opposite the receiving end of the uptake channel;

an analysis target area extending from an end of the uptake channel that is free of solid phase an inner tube connected to the matrix, the inner tube extending into the reservoir to form a bubble;

a reagent tag that binds to the target molecule and fluoresces when subjected to near infrared light emissions;

a pump assembly and a controller controlling the pump assembly to aspirate the sample fluid and the reagent tag into the uptake channel, through the matrix, and into the inner tube to form the bubble at the analysis target area;

an optical system comprising a lens; and

a light source focused directly on the analysis target area where the bubble is formed and emitting light in a wavelength comprising near-infrared light emissions; and

a detector detecting the reagent tag that fluoresces within the sample holder analysis target area when subjected to the light source.

Claims 13-16 (CANCELLED)

17. (PREVIOUSLY PRESENTED) The apparatus according to claim 7, wherein the reagent tag comprises a laser dye.

18. (PREVIOUSLY PRESENTED) The apparatus according to claim 17, wherein the laser dye is soluble in water and binds electrostatically to one or more of albumin, lipoproteins, and gamma globulins.

19. (PREVIOUSLY PRESENTED) The apparatus according to claim 18, wherein the laser dye comprises a negative charge.

20. (PREVIOUSLY PRESENTED) The apparatus according to claim 19, wherein the laser dye has the formula C₄₅H₄₈N₃O₁₃S₅Na₃.